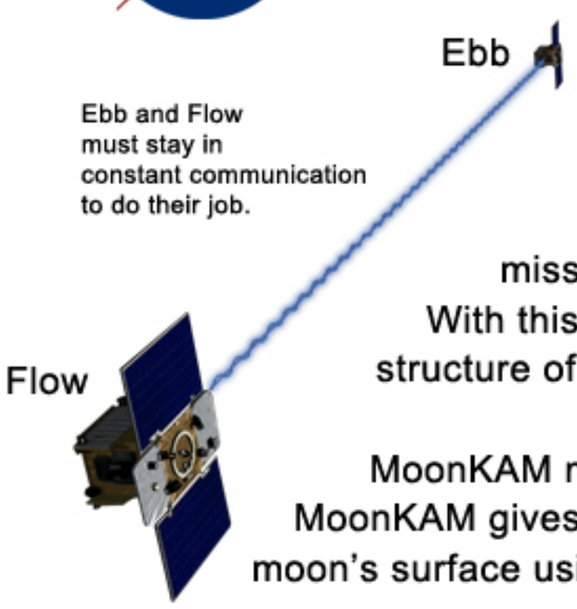
MoonKAM

The Universe's First Student-Run Planetary Camera



Ebb and Flow must stay in constant communication to do their job.

Using twin lunar orbiters (Ebb and Flow), the **Gravity Recovery And Interior Laboratory (GRAIL)** mission is creating the most accurate gravitational map of the moon. With this gravitational map, GRAIL scientists will understand the internal structure of the moon (what is going on beneath the surface).

The student-run instrument aboard GRAIL is the **MoonKAM**. MoonKAM means "**Moon K**nowledge **A**cquired by **M**iddle school students." MoonKAM gives students the unique opportunity to snap their own photos of the moon's surface using cameras on board Ebb and Flow.

1 Middle school students and classrooms log on to the MoonKAM website. https://moonkam.ucsd.edu/

2 After learning about the moon, the mission and a little about orbital mechanics...

3 ...they choose a location on the moon they're interested in photographing...

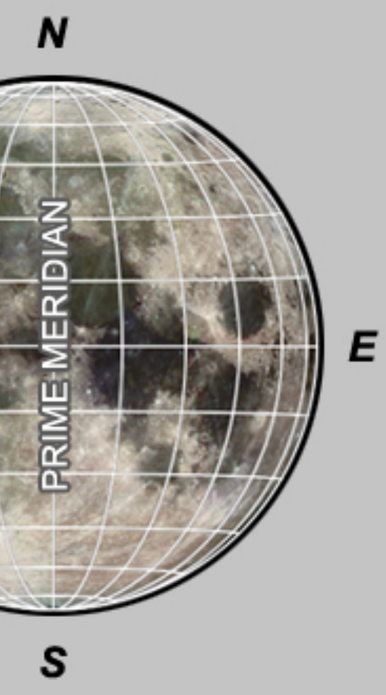
4 ...and submit a request through the website.

5 Commands are beamed up by NASA's Deep Space Network to the Ebb and Flow spacecraft 240,000 miles away.

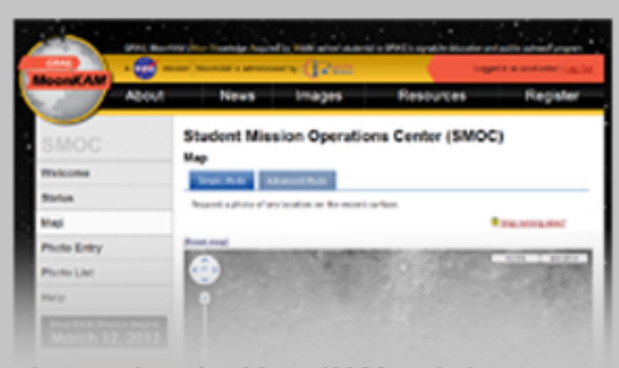
6 At exactly the right moment, MoonKAM takes the picture.

7 Later, the MoonKAM image is relayed back to Earth as part of GRAIL's regularly-scheduled transmissions of science and other important mission information.

8 The MoonKAM pictures appear on the MoonKAM website, along with the name of the requesting student's school and class.



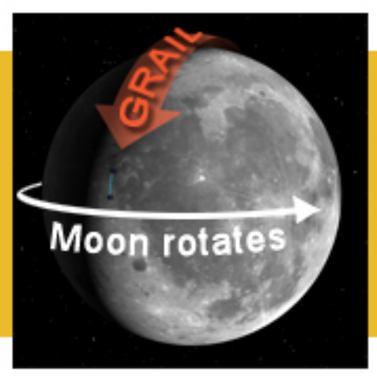
Any position on the moon can be referenced by specifying its latitude and longitude.
Longitude (the vertical lines) gives the position east or west of the prime meridian.
Latitude gives the position north or south of the lunar equator.



Students using the MoonKAM website can track the progress of Ebb and Flow and preview where on the moon they will be flying over in the future. The students can click on any point on those orbits and zoom in for a closer look. After deciding what to image, they submit the date and time they want the picture taken, along with the latitude and longitude of the lunar feature.

MoonKAM is led by Sally Ride, who became America's first woman in space in 1983 while flying aboard the space shuttle Challenger.

Mission STS-7
June 18-23, 1983



The orbit of NASA's formation-flying GRAIL twins (Ebb and Flow) carries them over the moon's north and south poles. As the moon rotates below, the twins cover new ground on each orbit, eventually flying over the moon's entire surface.